

**ADAPTIVE-OPTICS ACTUATOR ARRAYS AND  
METHODS FOR USING SUCH ARRAYS**

**Abstract of the Disclosure**

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Actuator arrays for use in adaptive-optical elements and optical systems containing at least one such element are disclosed. The actuator arrays provide more precise control of the shape of the adaptive-optical surface while utilizing fewer actuators than conventional systems. An adaptive-optical system of an embodiment  
10 includes an array of force devices coupled to a deformable optical surface. The force devices of the array are arranged in braking groups and force-altering groups such that each force device belongs to a respective combination of braking group and force-altering group. A respective force controller is coupled to the force devices of each force-altering group, and a respective braking controller is coupled to the force devices  
15 of each braking group. The force-altering group adjusts as required the respective forces exerted on the optical surface by the force devices of the respective force-altering group, whereas the braking controller when actuated prevents changes in respective forces exerted by the force devices of the respective braking group.